

STATE OF CALIFORNIA
The Resources Agency
DEPARTMENT OF WATER RESOURCES

BULLETIN NO. 106-2

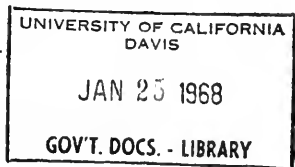
GROUND WATER OCCURRENCE AND QUALITY,
SAN DIEGO REGION

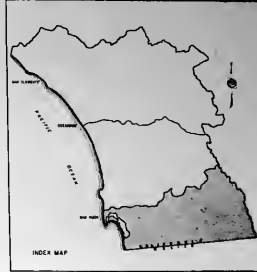
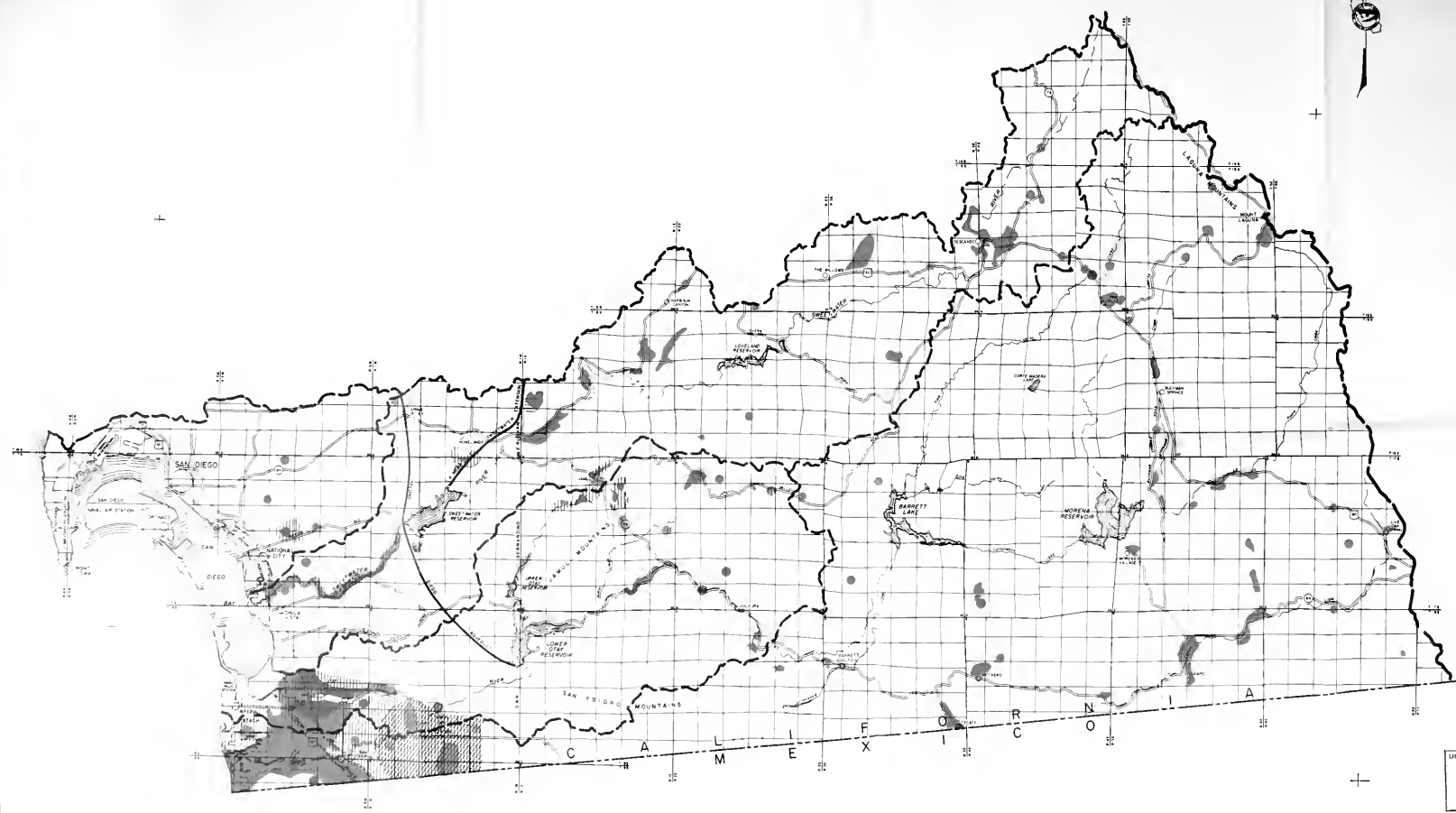
VOLUME II

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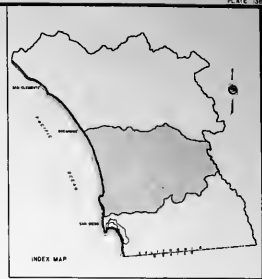
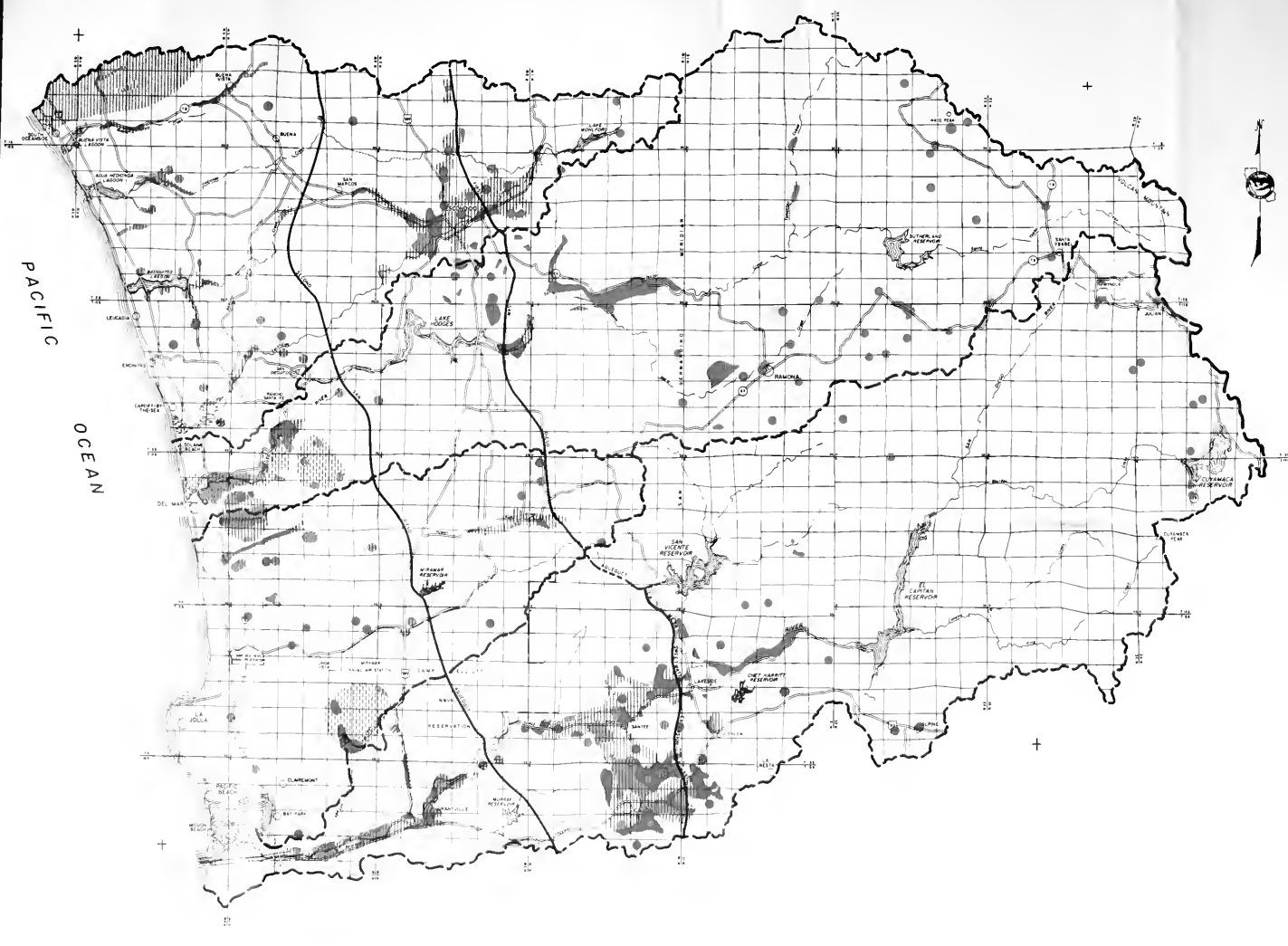
(NOTE: Plates 1, 4A, 4B, 4C, 5, 7, and 10 are in Volume I)

<u>Plate No.</u>	<u>Title</u>
1	See Volume I
2A,B,C	Areal Geology
3A,B,C	Subsurface Lithology of Selected Areas
4A,B,C	See Volume I
5	See Volume I
6A,B,C	Location of Selected Wells and Springs
7	See Volume I
8A,B,C	Generalized Depths to Water in Wells
9A,B,C	Areal Extent of Total Dissolved Solids in Ground Water
10	See Volume I
11A,B,C	Chemical Character of Ground Water
12A,B,C	Rating of Ground Water for Domestic Uses
13A,B,C	Rating of Ground Water for Irrigation Uses





LEGEND				
Feature	Symbol	Symbol	Symbol	Symbol
LETTERING, CHARACTERS E.G. OF "A"	LESS THAN 100	100 - 200	200 - 300	GREATER THAN 300
On (solid) sign	LESS THAN 100	100 - 200	200 - 300	GREATER THAN 300
BROWN sign	LESS THAN 100	100 - 200	200 - 300	GREATER THAN 300
PERMANENT SIGNAGE	LESS THAN 100	100 - 200	200 - 300	GREATER THAN 300

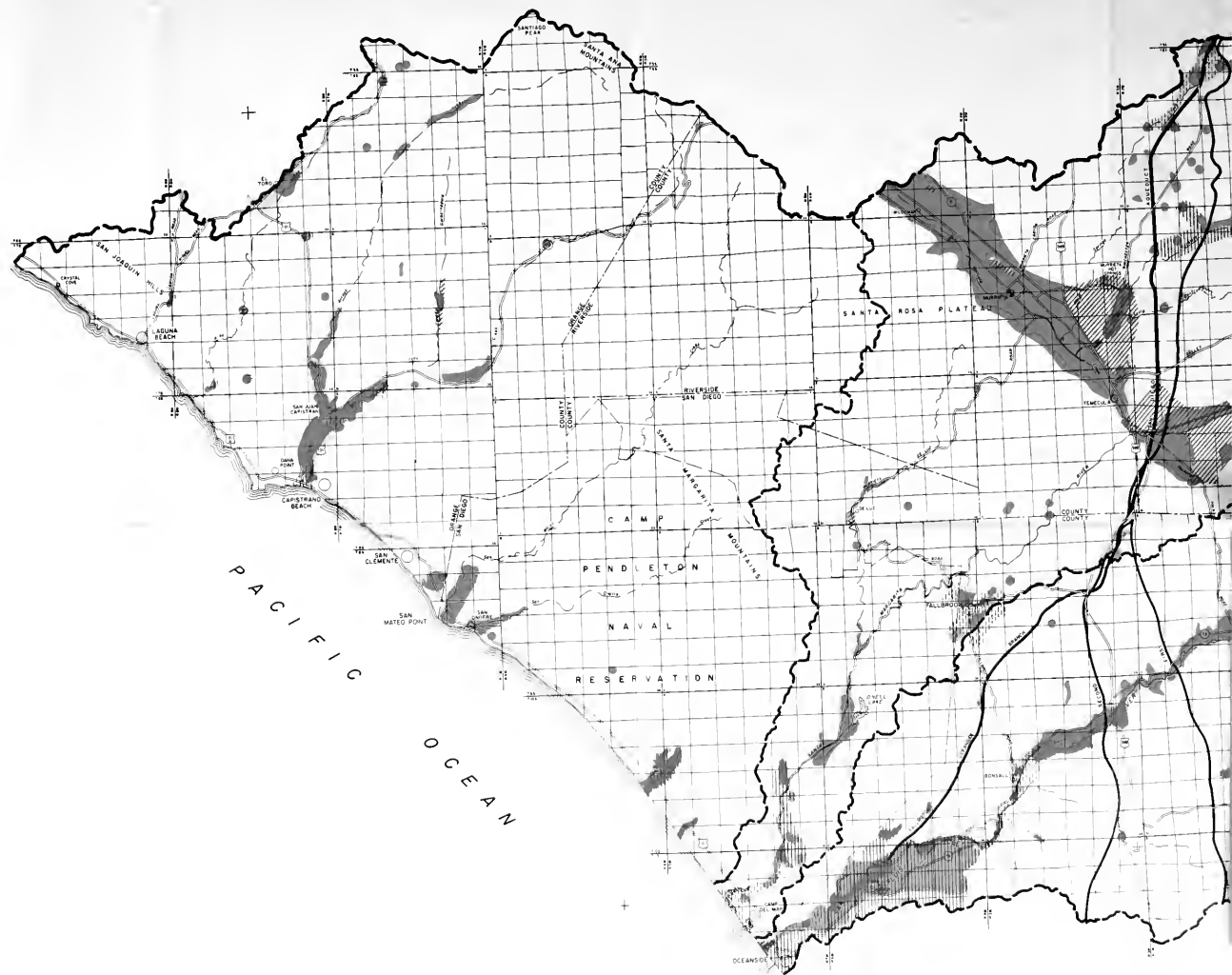


LEGEND

WATER TYPE	QUALITY	APPLICABLE	APPLICABLE
RESERVOIR, DAMAGED BY USE OF 100'	LESS THAN 100'	100' - 1000'	GREATER THAN 1000'
1000' - 1000'	1000' - 1000'	1000' - 1000'	1000' - 1000'
1000' - 1000'	1000' - 1000'	1000' - 1000'	1000' - 1000'
1000' - 1000'	1000' - 1000'	1000' - 1000'	1000' - 1000'

NOTES:
 1. DATA REPRESENTS 1955-1956 SURVEYING. QUALITY DATA REPRESENTS 1955-1956.
 2. DATA IS BASED ON THE FOLLOWING: A. QUALITY OF WATER IN THE GROUND. B. QUALITY OF WATER IN THE SURFACE. C. QUALITY OF WATER IN THE AIR.
 3. DATA IS BASED ON THE QUALITY OF THE GROUND.
 4. DATA IS BASED ON THE QUALITY OF THE GROUND.
 5. DATA IS BASED ON THE QUALITY OF THE GROUND.
 6. DATA IS BASED ON THE QUALITY OF THE GROUND.
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 8. DATA IS BASED ON THE QUALITY OF THE GROUND.
 9. DATA IS BASED ON THE QUALITY OF THE GROUND.
 10. DATA IS BASED ON THE QUALITY OF THE GROUND.

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 STATE OF CALIFORNIA
 THE RESOURCES AGENCY
 DEPARTMENT OF WATER RESOURCES
 SOUTHERN DISTRICT
 GROUND WATER OCCURRENCE AND QUALITY
 SAN DIEGO REGION
 RATING OF GROUND WATER FOR IRRIGATION USES
 SCALE 1:50,000



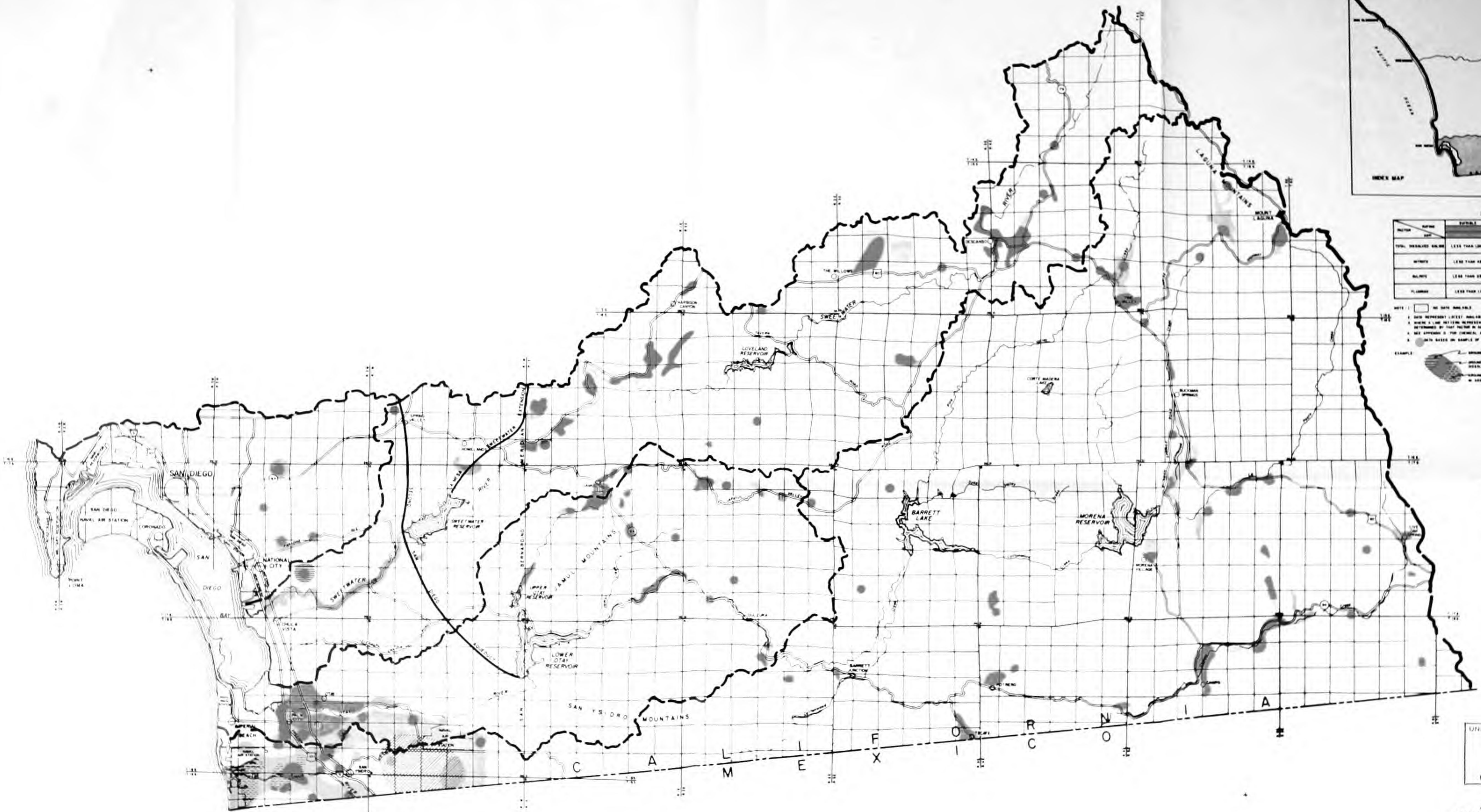


LEGEND

WATER QUALITY	EXCELLENT	GOOD	FAIR	POOR
TOTAL DISSOLVED SOLIDS	LESS THAN 100	100-150	150-250	GREATER THAN 250
MINERALITY	LESS THAN 40	40-60	60-100	GREATER THAN 100
SALINITY	LESS THAN 500	500-1000	1000-2000	GREATER THAN 2000
FLUORIDE	LESS THAN 1.0	1.0-1.5	1.5-2.0	GREATER THAN 2.0

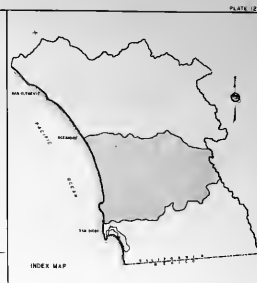
NOTE: 1. NO DATA AVAILABLE
2. DATA REPRESENT BEST AVAILABLE INFORMATION, GENERALLY SUBMITTED TO USGS
3. WHERE A LINE NOTATION REPRESENTS A FACTOR IS SHOWN THE RATING IS DETERMINED BY THAT FACTOR IN ADDITION TO THE TOTAL DISSOLVED SOLIDS
4. SEE APPENDIX B FOR CHEMICAL ANALYSES
5. DATA BASED ON SAMPLE OF ONE WELL

EXAMPLE: 1. GROUND WATER RATES SUPERIOR BECAUSE OF HIGH SALINITY
2. GROUND WATER RATES MODERATE BECAUSE OF HIGH TOTAL DISSOLVED SOLIDS
3. GROUND WATER RATES SUPERIOR BECAUSE OF HIGH SALINITY IN ADDITION TO HIGH TOTAL DISSOLVED SOLIDS



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SOUTHERN DISTRICT
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
RATING OF GROUND WATER
FOR DOMESTIC USES
SCALE OF 1000
1968



LEGEND			
NOTES	SALES	EXPENSES	NET INCOME
10% OVERHEAD SALES	LESS 10% SALES		GREATER THAN 0
NET INCOME	LESS THAN 0		GREATER THAN 0
SALES	LESS THAN 0		GREATER THAN 0
EXPENSES	LESS THAN 0		GREATER THAN 0

NOTE: ☐ NO DATA AVAILABLE

1 THE REPRESENTATIVE DATA FILE INFORMATION, GENERALLY SUBSEQUENT TO 1000

2 WHERE A LINE INDICATES PRESENTING A FACTOR IS FORMED THE REASON IS

3 DETERMINED BY THE FACTOR AND THE REASON OF THE TOTAL DISCREPANCY VALUE

4 THE REASON IS FOR THE DATA AVAILABLE

5 DATA BASED ON SAMPLE OF THE WELL

EXAMPLE:

1. GROUND WATER RISED INTERIOR BECAUSE OF HIGH BULK

2. GROUND WATER RISED BECAUSE OF HIGH BULK

3. GROUND WATER RISED BECAUSE OF HIGH BULK

4. GROUND WATER RISED BECAUSE OF HIGH BULK

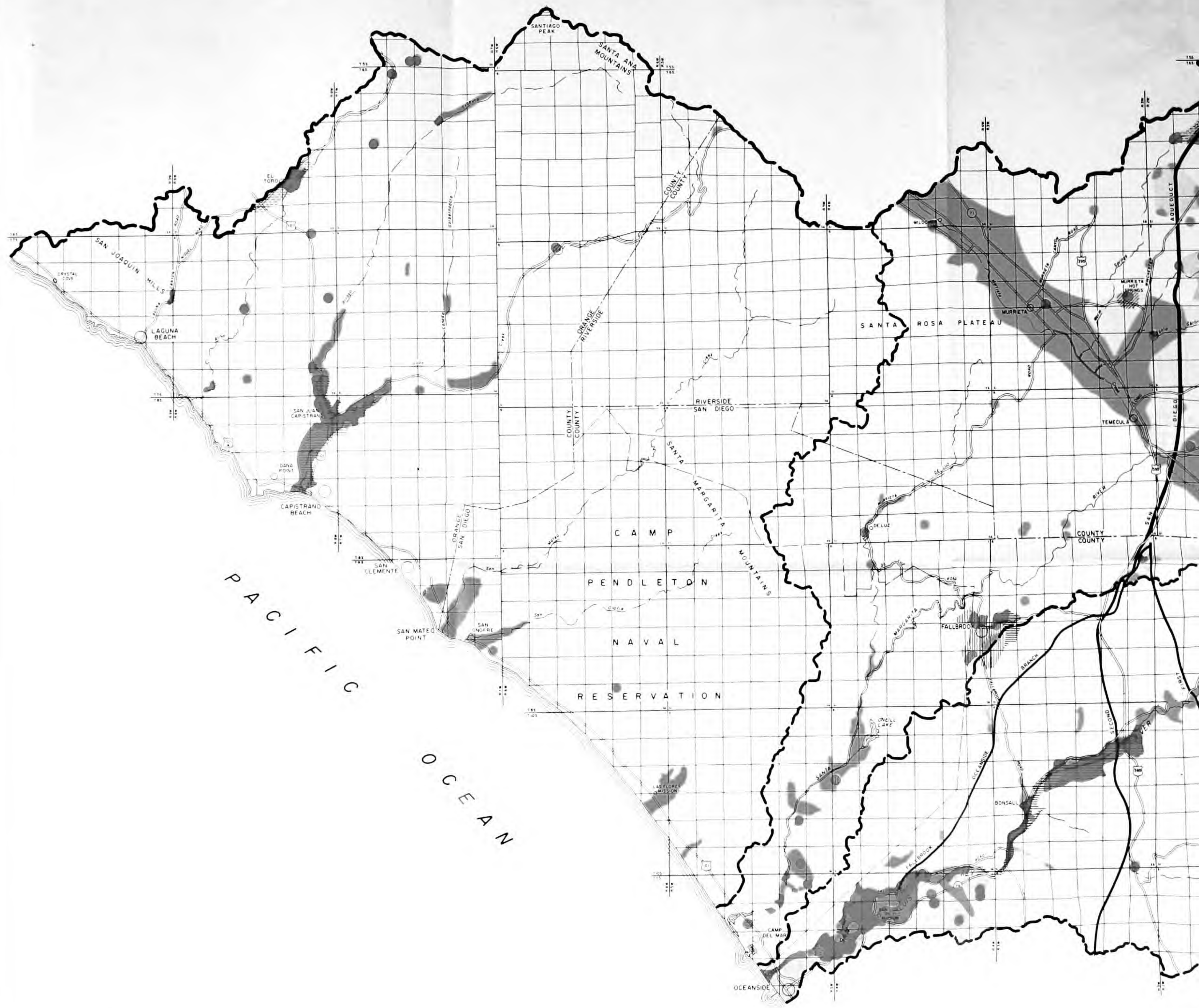
5. GROUND WATER RISED BECAUSE OF HIGH BULK

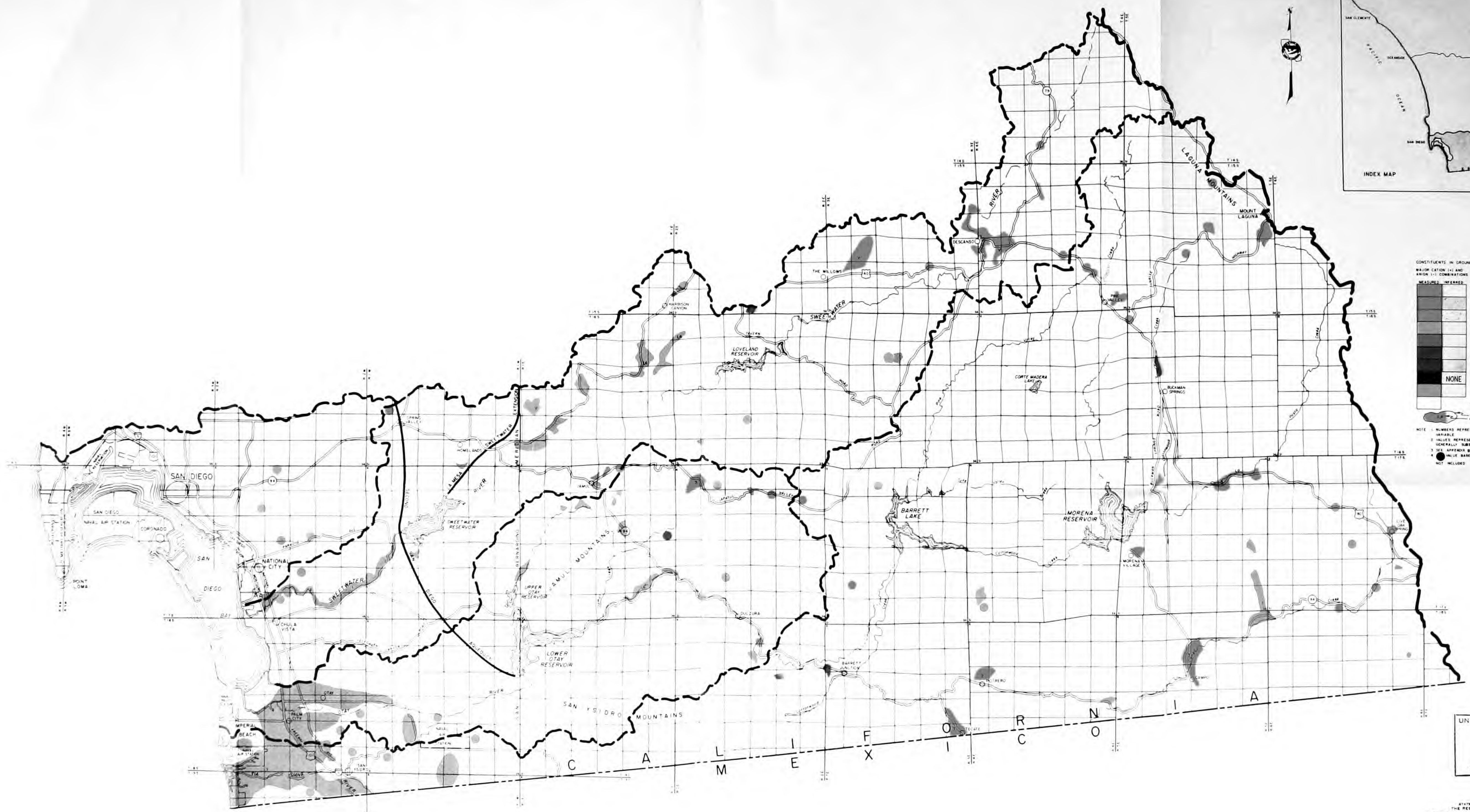
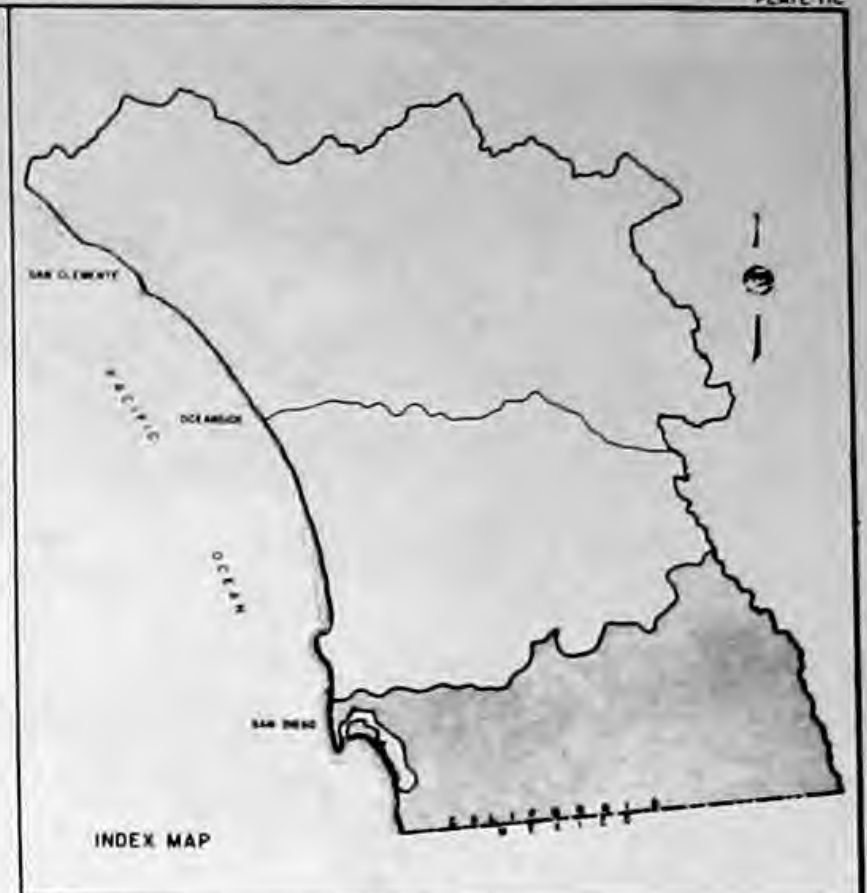
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SOUTHERN DISTRICT
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION

RATING OF GROUND WATER FOR DOMESTIC USES







LEGEND

CONSTITUENTS IN GROUND WATER

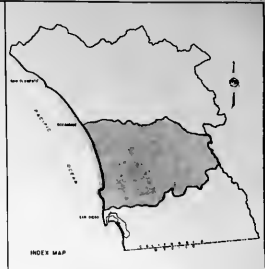
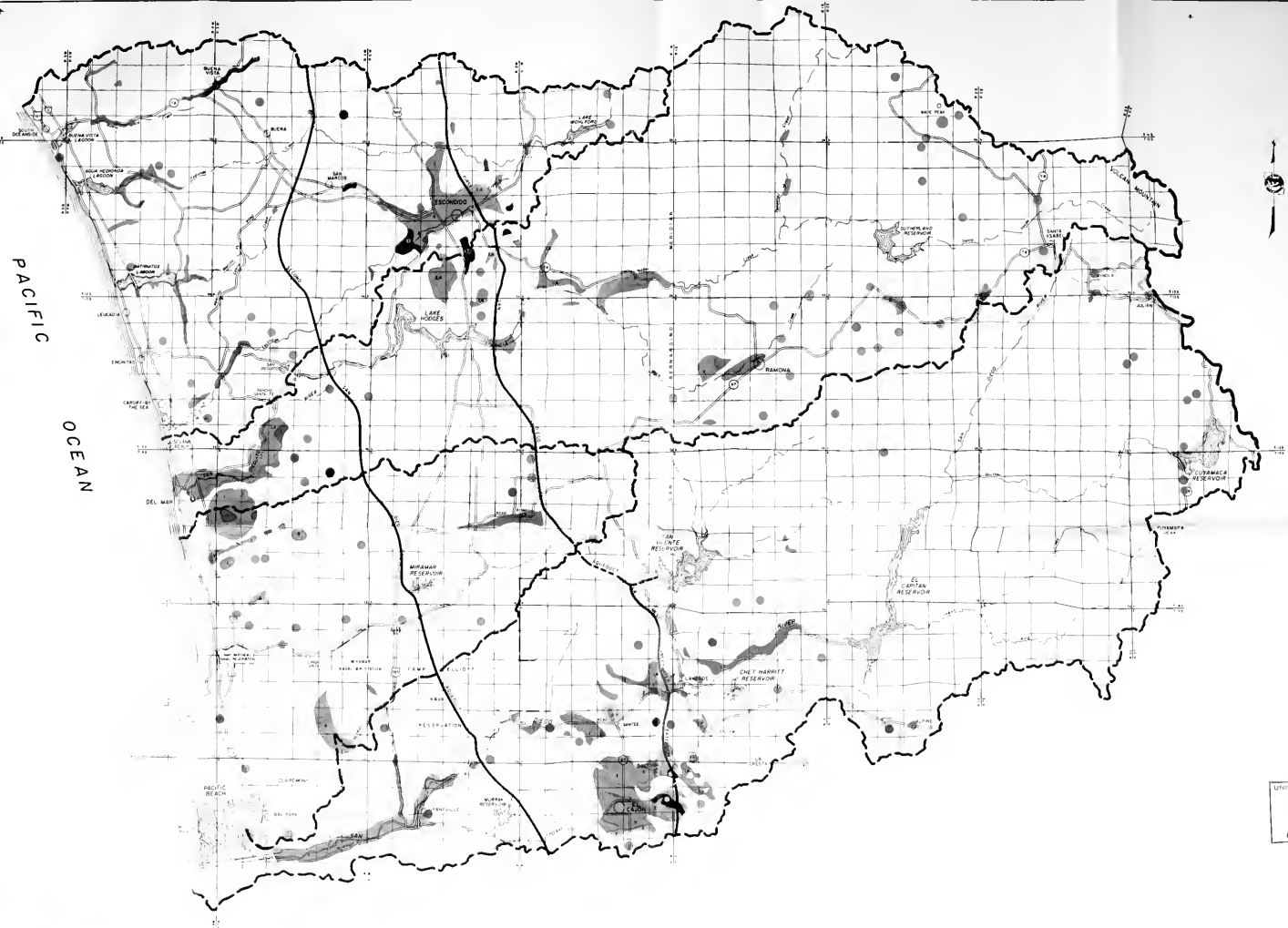
MAJOR CATION (1+) AND ANION (1-) COMBINATIONS

MEASURED	INFERRED	ION COMBINATION	NUMBER	ION CATION (1+)
		Ca HCO ₃	1	Ca
		Mg HCO ₃	2	Mg
		Na HCO ₃	3	Na
		Ca SO ₄	4	Ca
		Mg SO ₄	5	Mg
		Na SO ₄	6	Na
		Ca Cl	7	Ca
		Mg Cl	8	Mg
		Na Cl	9	Na
		NO AVAILABLE DATA		

NOTE: 1. NUMBERS REPRESENT PREDOMINANT SUBORDINATE IONS, "V" WHERE VARIABLE.
2. VALUES REPRESENT LATEST AVAILABLE INFORMATION, GENERALLY SUBSEQUENT TO 1960.
3. SEE APPENDIX B FOR CHEMICAL ANALYSES.
4. "V" VALUE BASED ON SAMPLE OF ONE WELL, SUBORDINATE IONS NOT INCLUDED.

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SOUTHERN DISTRICT
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
CHEMICAL CHARACTER OF GROUND WATER
SCALE 1:50,000



LEGEND

CONTINENTS, ISLANDS, BAYS, LAKES, RIVERS, CANALS, AND OTHER WATER BODIES

SHADING: GROUNDWATER OCCURRENCE AND QUALITY

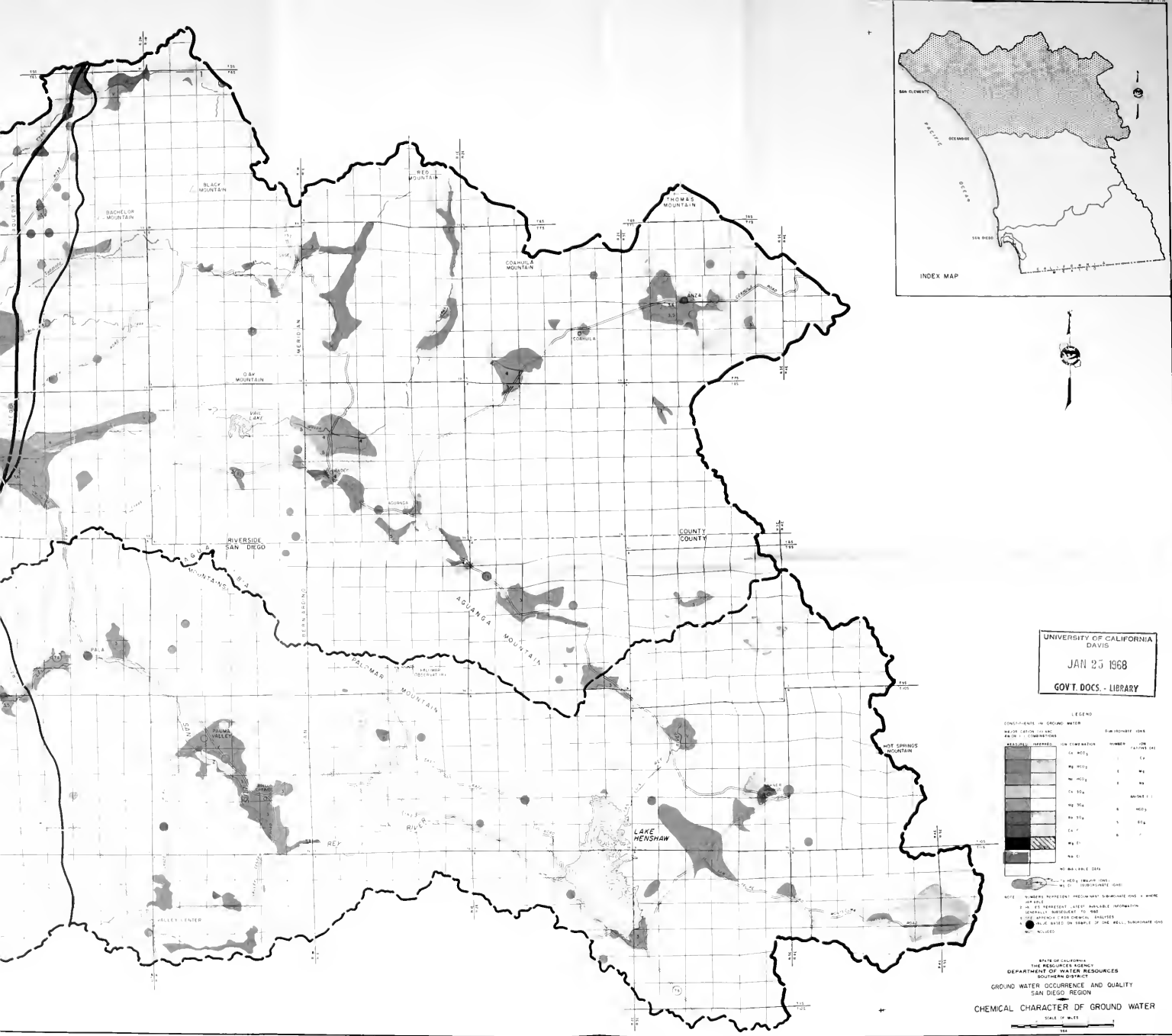
SHADING	NUMBER	QUALITY
(Lightest)	1	EXCELLENT
(Light)	2	VERY GOOD
(Medium-light)	3	GOOD
(Medium)	4	FAIR
(Medium-dark)	5	POOR
(Dark)	6	VERY POOR
(Darkest)	7	POISONOUS
(Black)	8	UNKNOWN

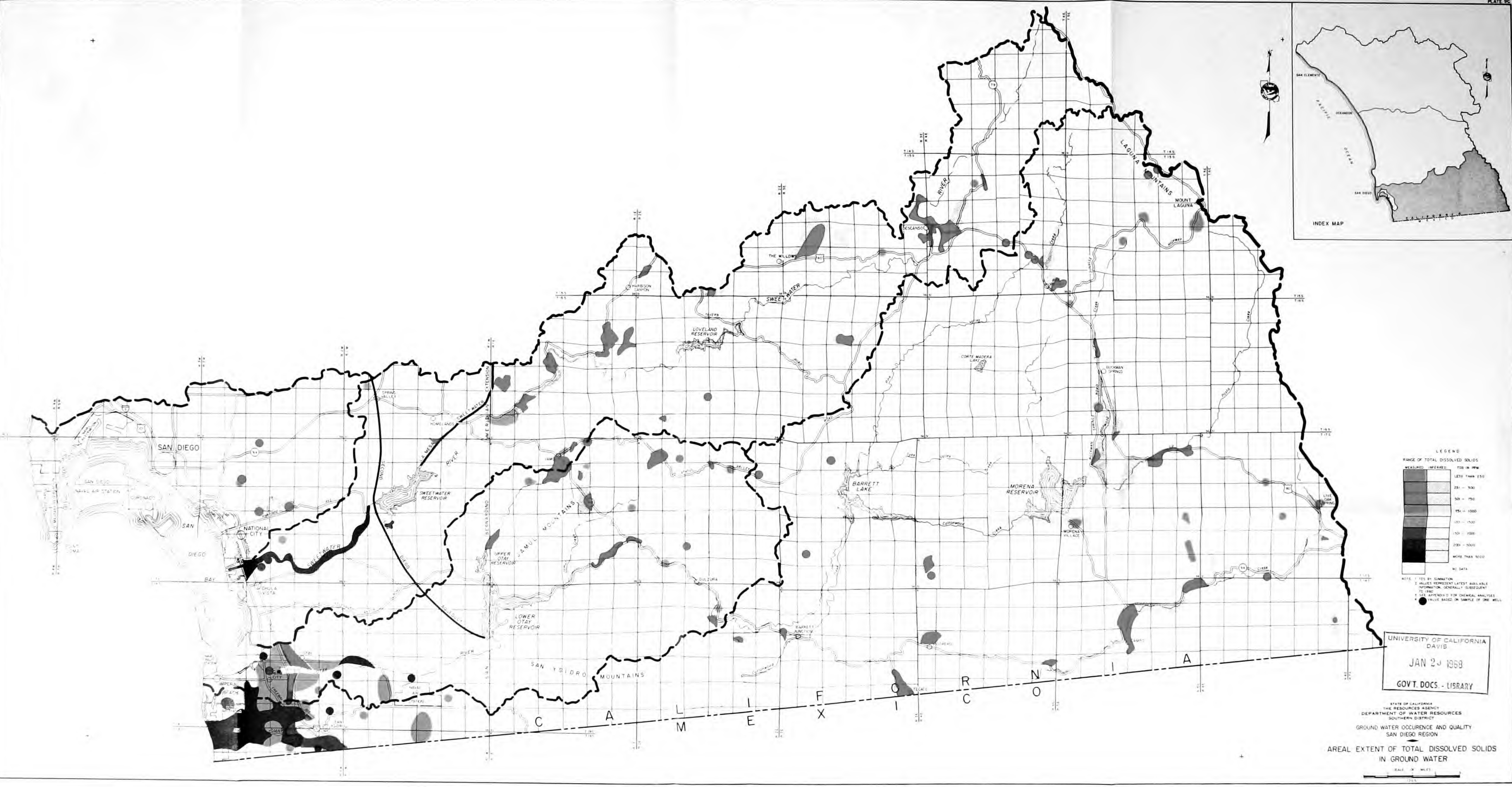
SYMBOLS: CIRCLES, SQUARES, TRIANGLES, AND OTHER SHAPES REPRESENTING SPECIFIC DATA POINTS.

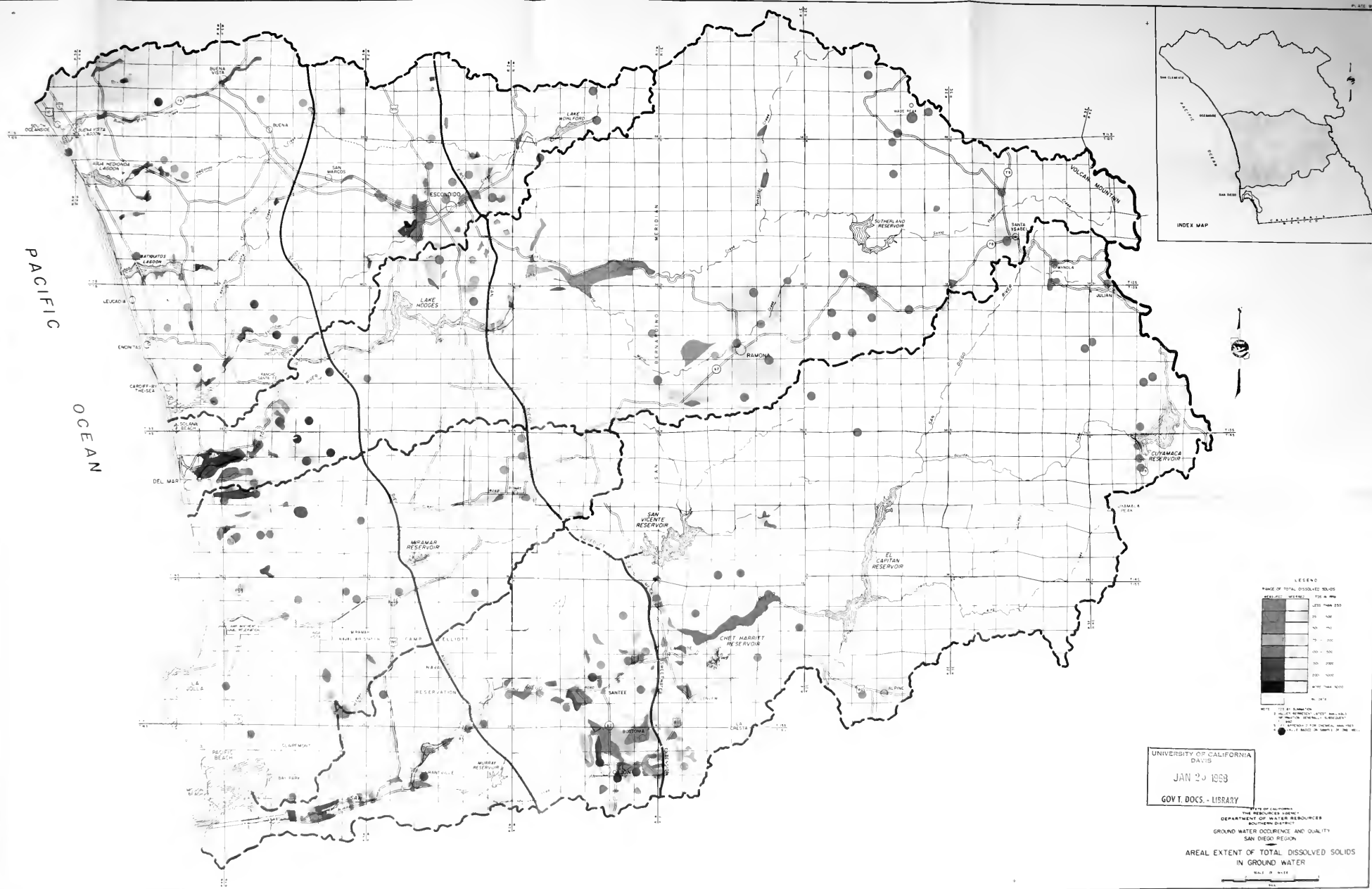
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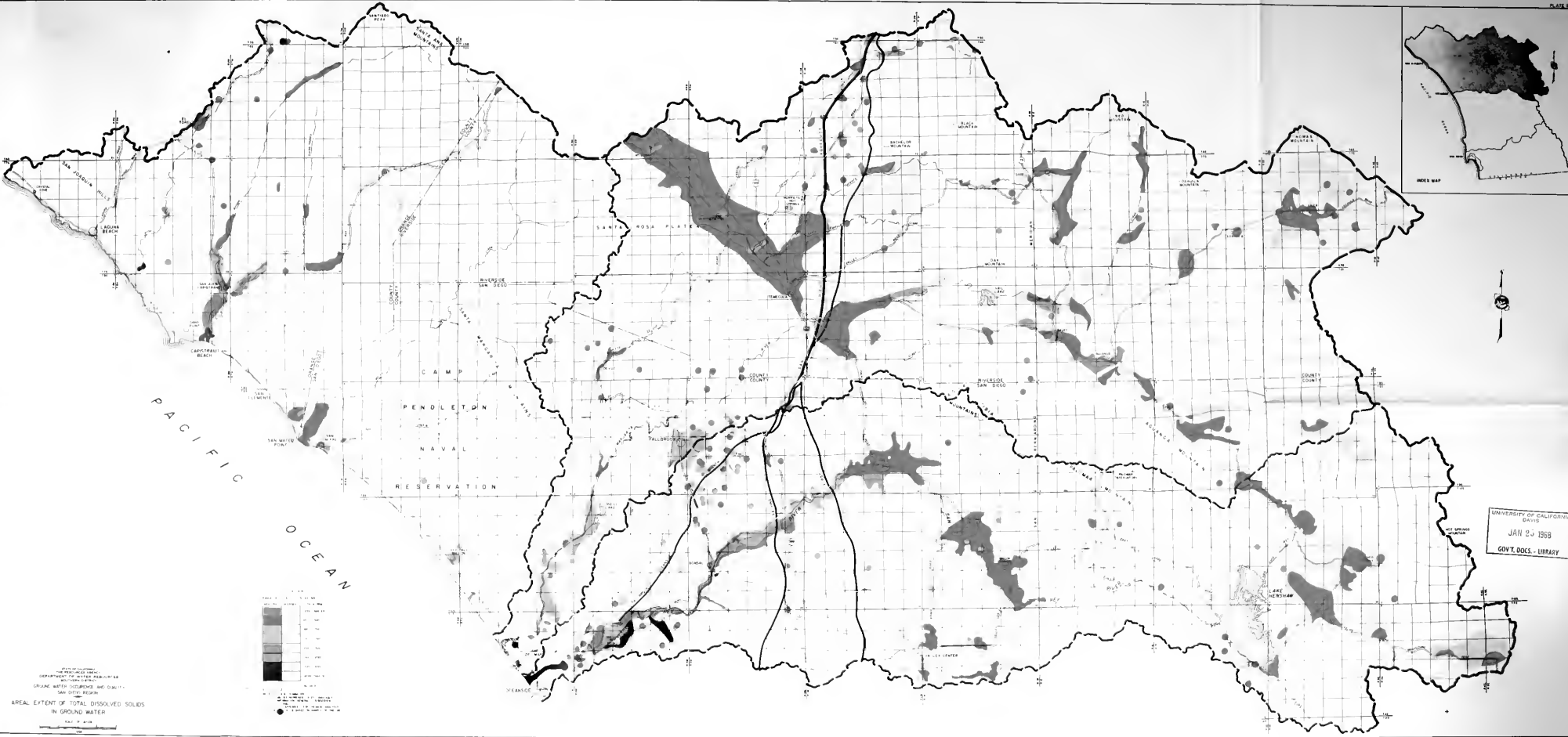
DEPARTMENT OF WATER RESOURCES
GROUNDWATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
CHEMICAL CHARACTER OF GROUND WATER



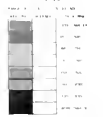


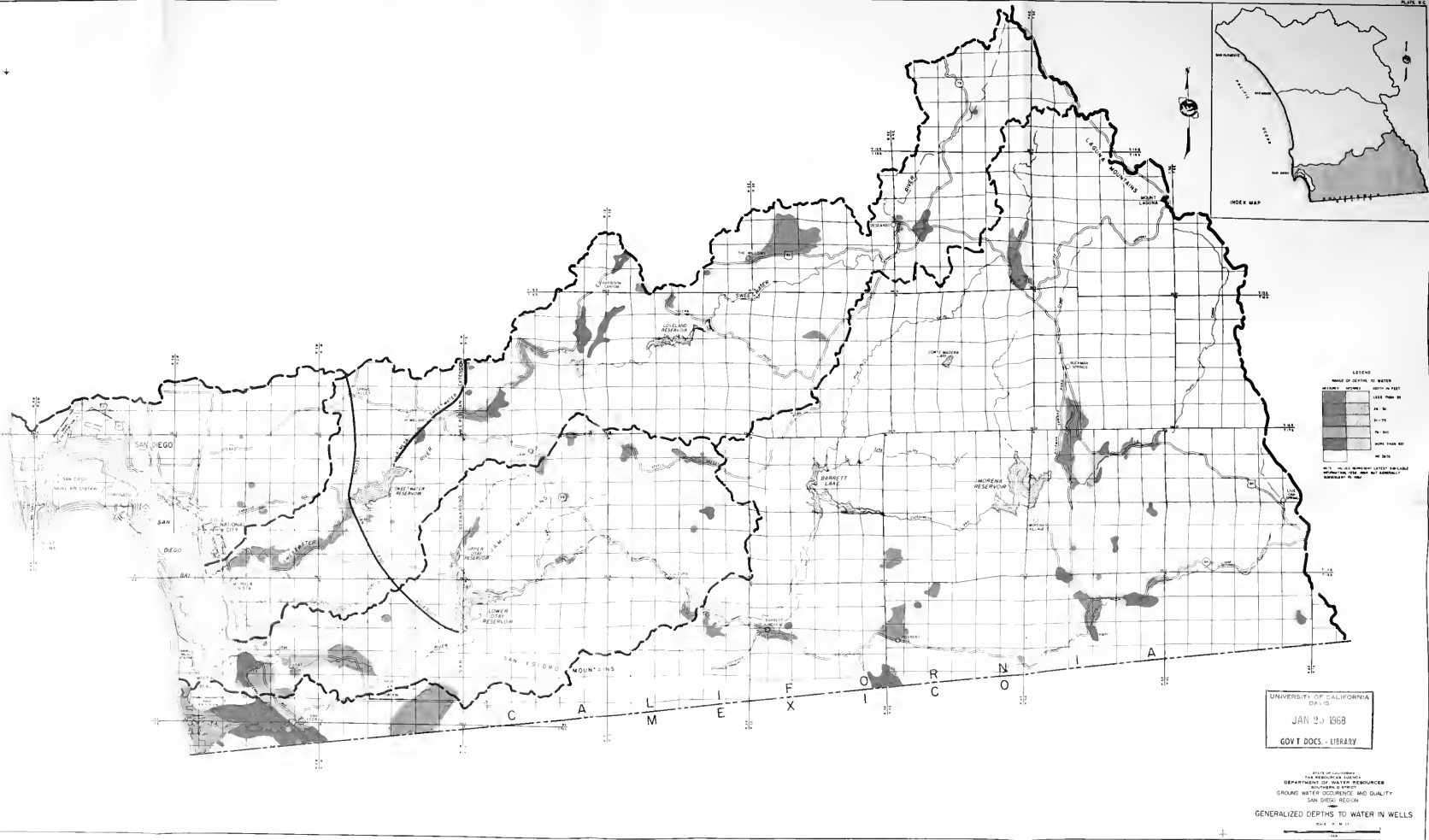


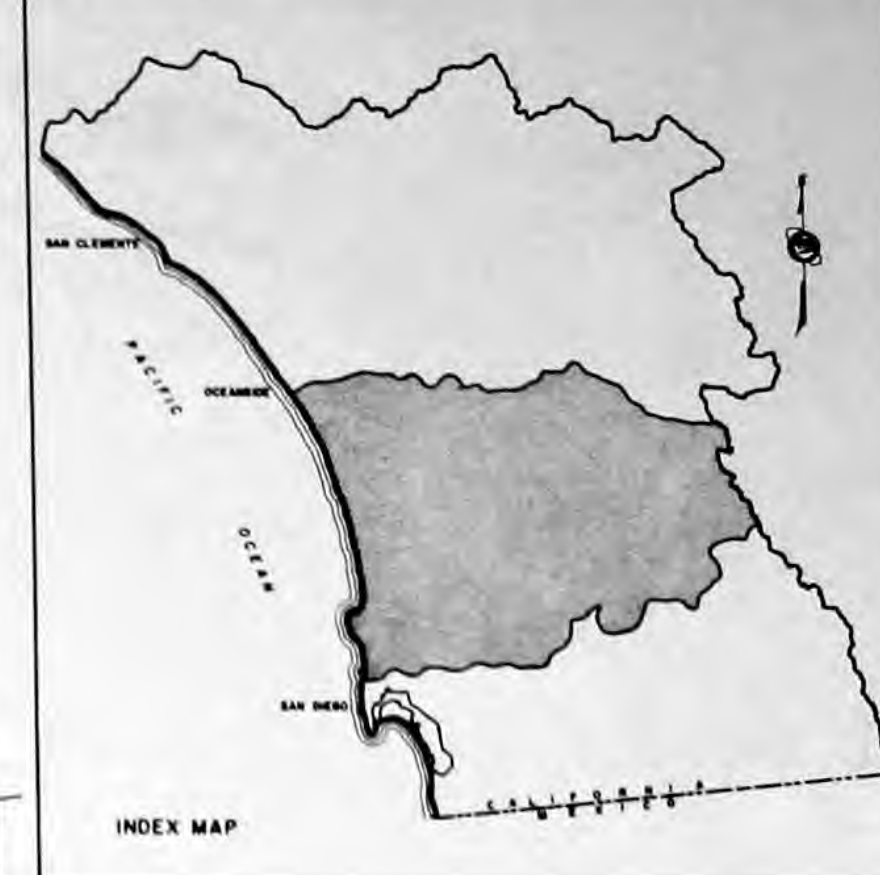
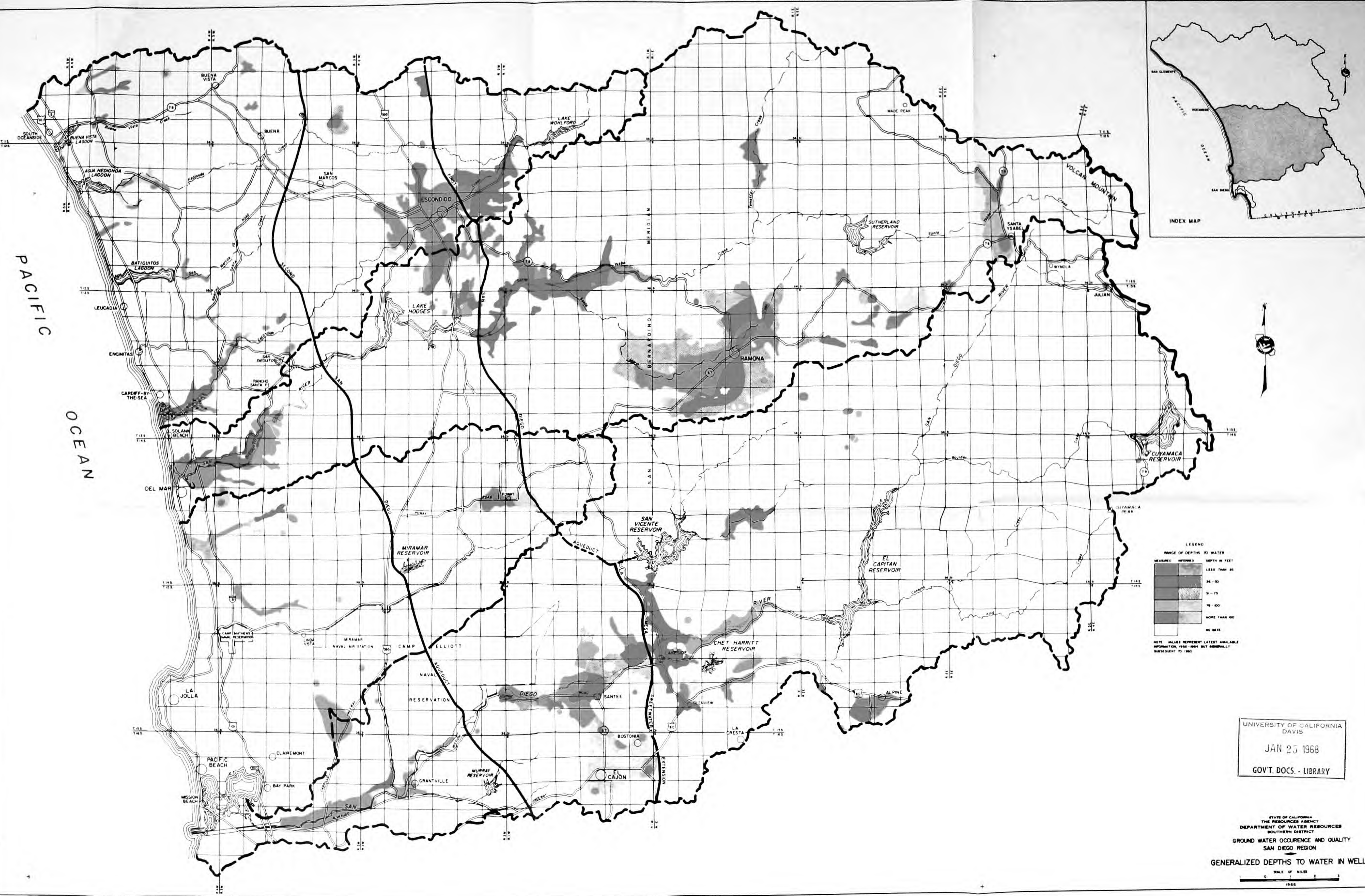




STATE OF CALIFORNIA
DEPARTMENT OF WATER RESOURCES
DIVISION OF GROUNDWATER
AREAL EXTENT OF TOTAL DISSOLVED SOLIDS
IN GROUNDWATER
SAN DIEGO COUNTY
JAN 23 1968







LEGEND

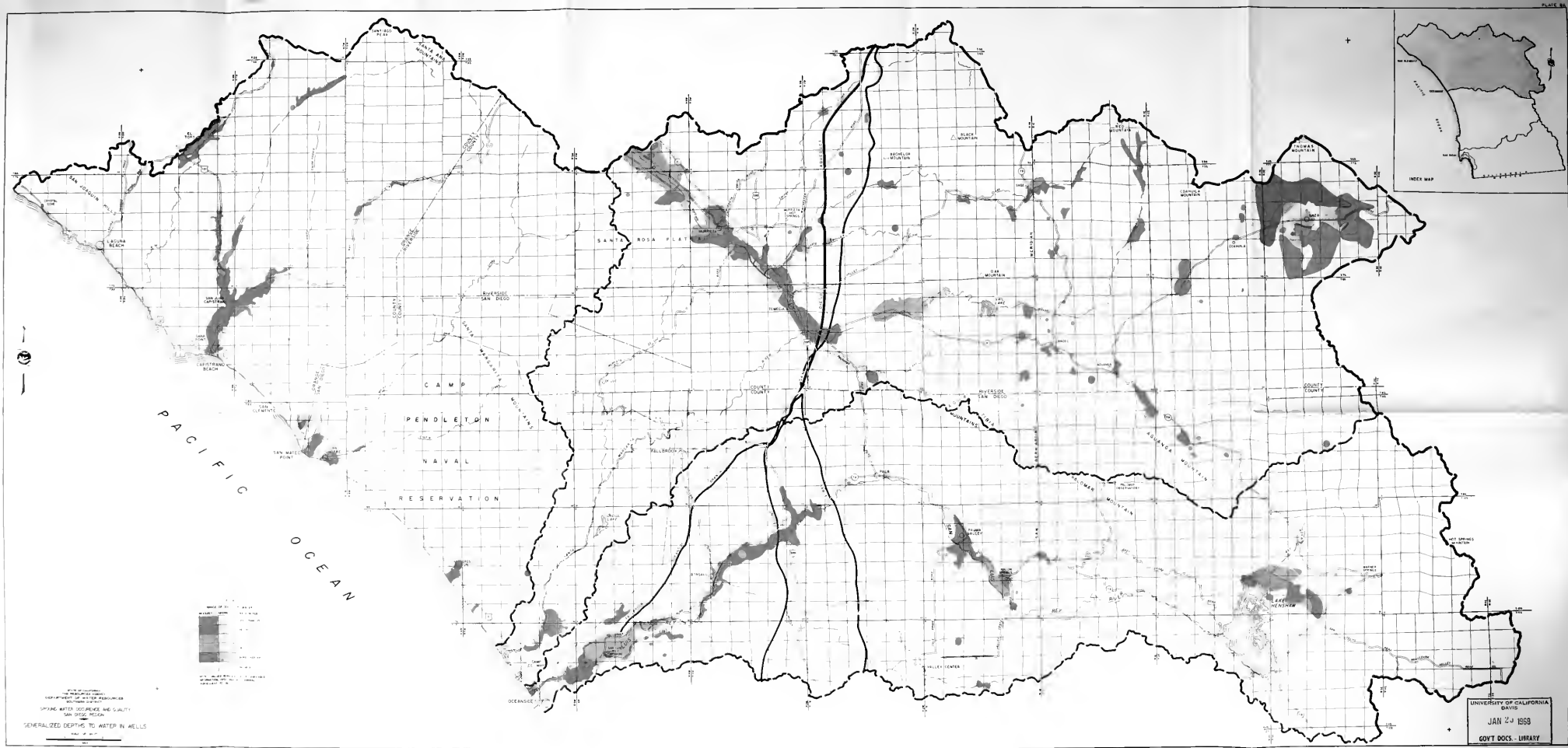
RANGE OF DEPTHS TO WATER

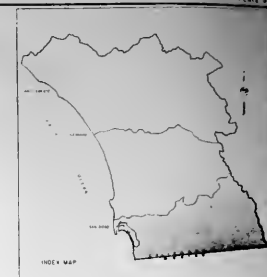
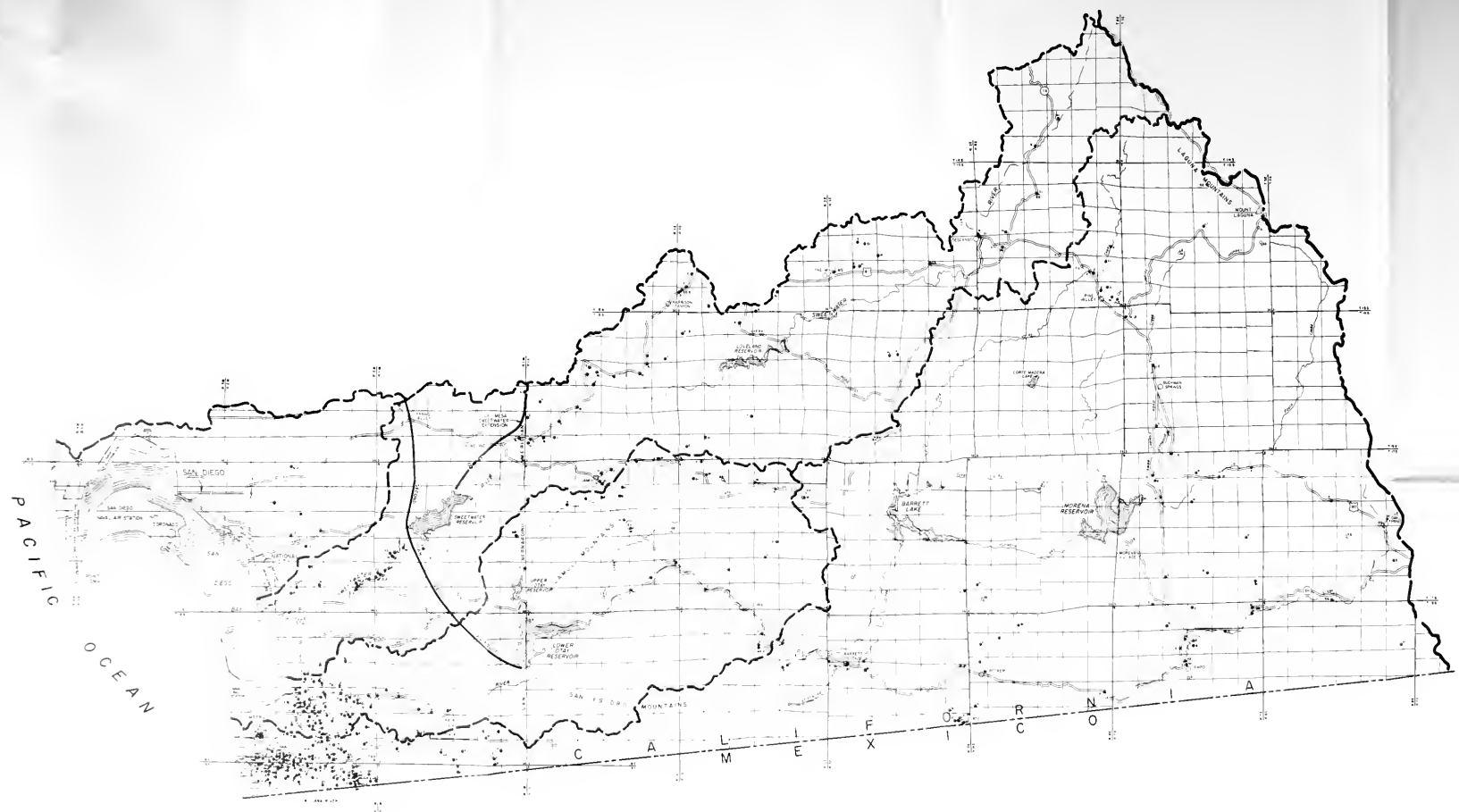
MEASURED	INTERPOLATED	DEPTH IN FEET
[Light Gray Box]	[Light Gray Box]	LESS THAN 25
[Medium Gray Box]	[Medium Gray Box]	25 - 50
[Dark Gray Box]	[Dark Gray Box]	51 - 75
[Very Dark Gray Box]	[Very Dark Gray Box]	76 - 100
[White Box]	[White Box]	MORE THAN 100
[White Box]	[White Box]	NO DATA

NOTE: VALUES REPRESENT LATEST AVAILABLE INFORMATION, 1954-1964 BUT GENERALLY SUBSEQUENT TO 1960

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GROUND WATER OCCURENCE AND QUALITY
SAN DIEGO REGION
GENERALIZED DEPTHS TO WATER IN WELLS
SCALE OF MILES
1 2 3
1966

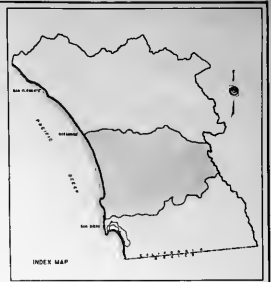




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- 1:25,000
- 1:50,000
- 1:100,000
- 1:250,000

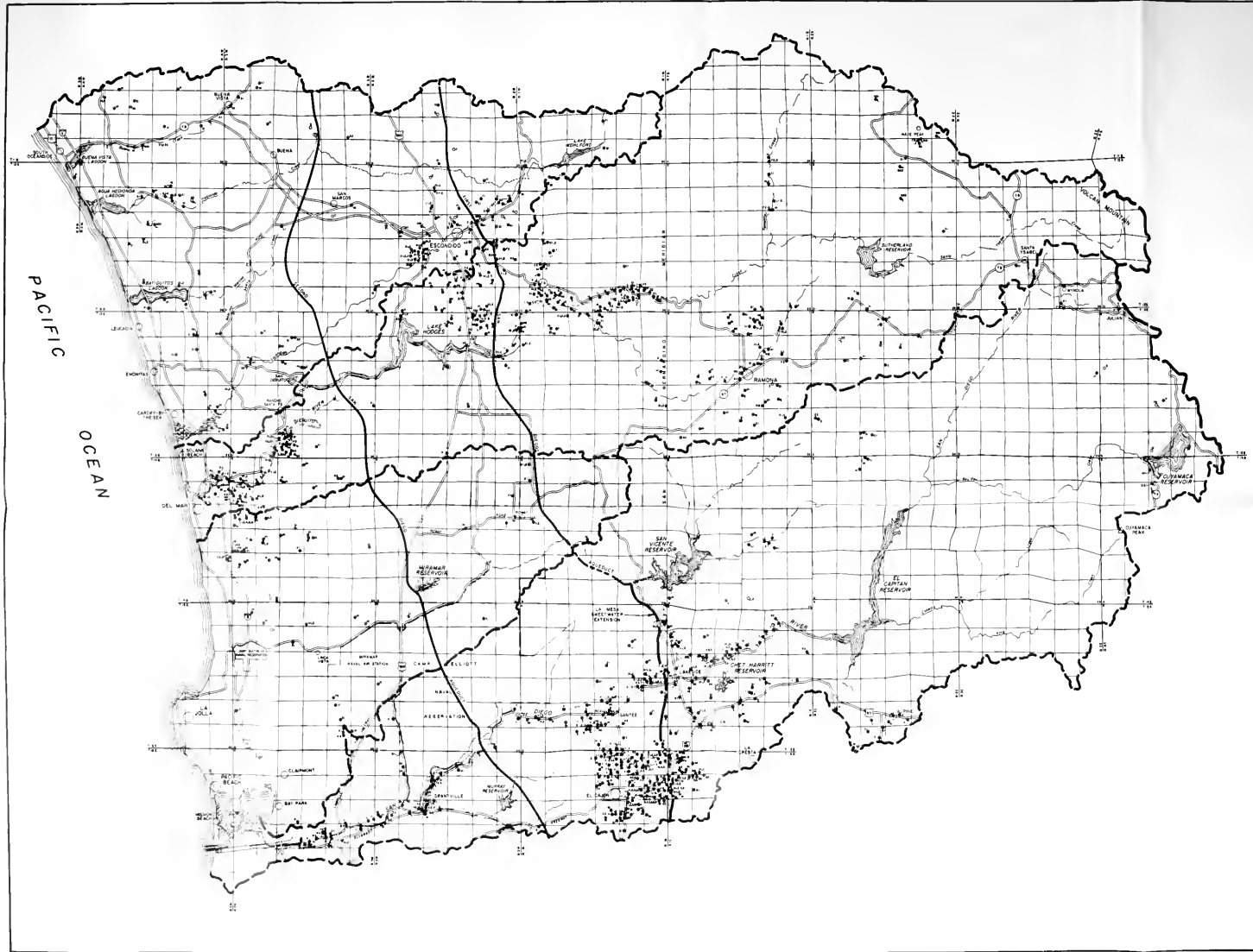
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DEPARTMENT OF WATER RESOURCES
SOUTHERN DIVISION
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
LOCATION OF SELECTED WELLS AND SPRINGS
1:25,000

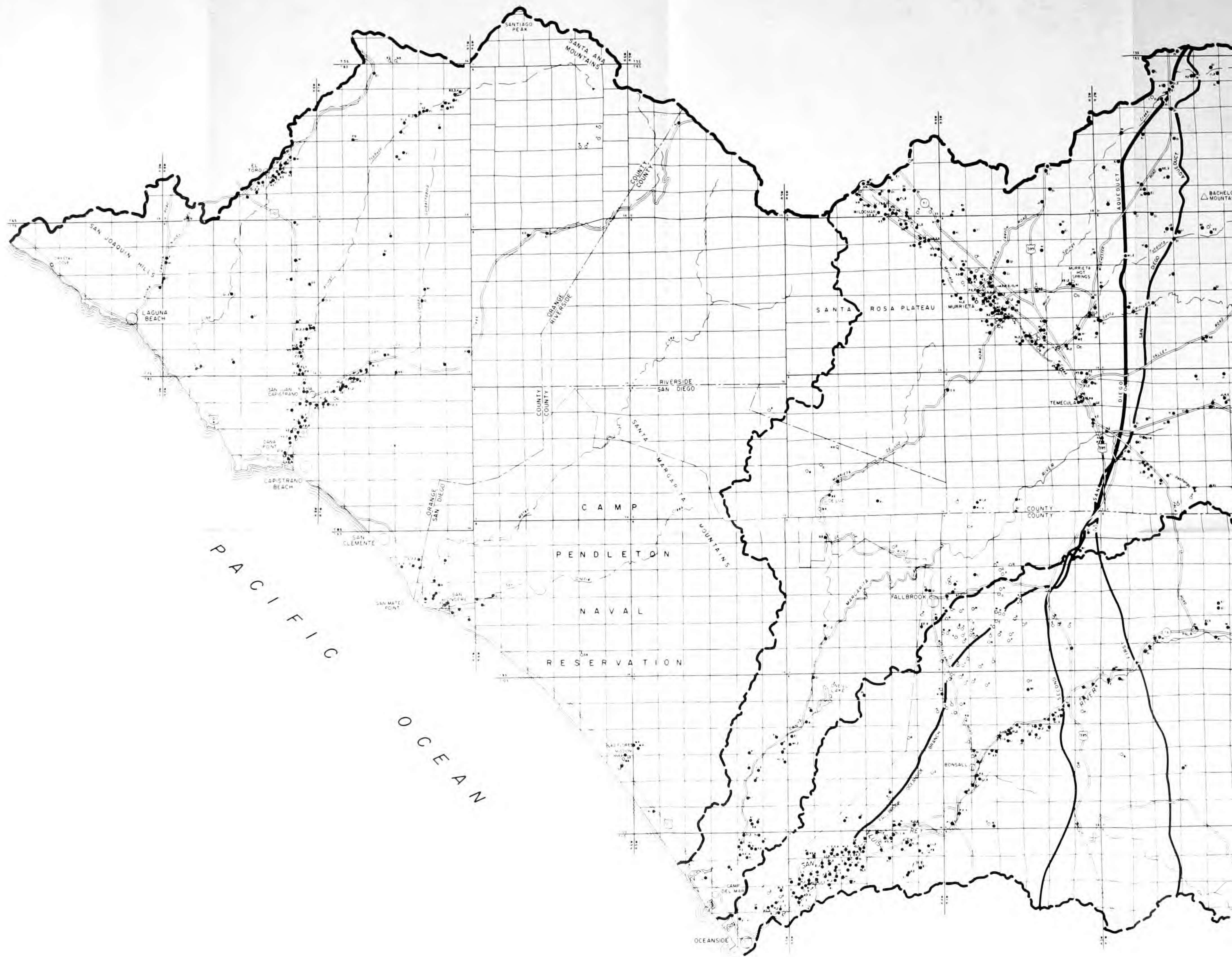


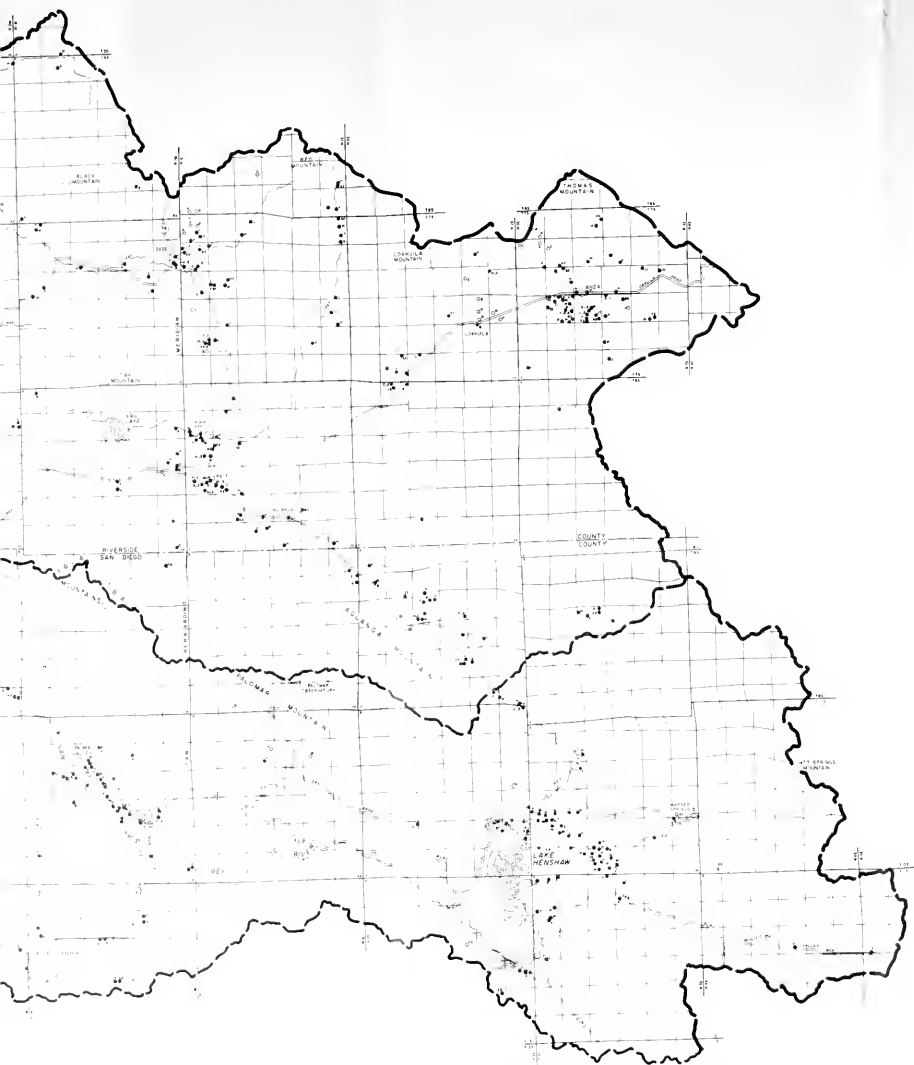
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- LEGEND
- OPEN WELL
 - SOLID WELL
 - CAPPED SPRING
 - UNCAPPED SPRING

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SOUTHERN DIVISION
GROUND WATER OCCURRENCE AND QUALITY
SAN GILDO REGION
LOCATION OF SELECTED WELLS AND SPRINGS
SCALE OF MILES
0 10 20





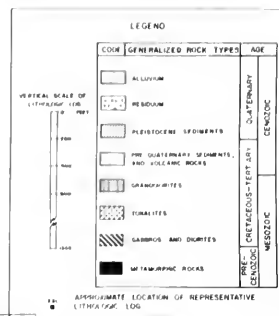
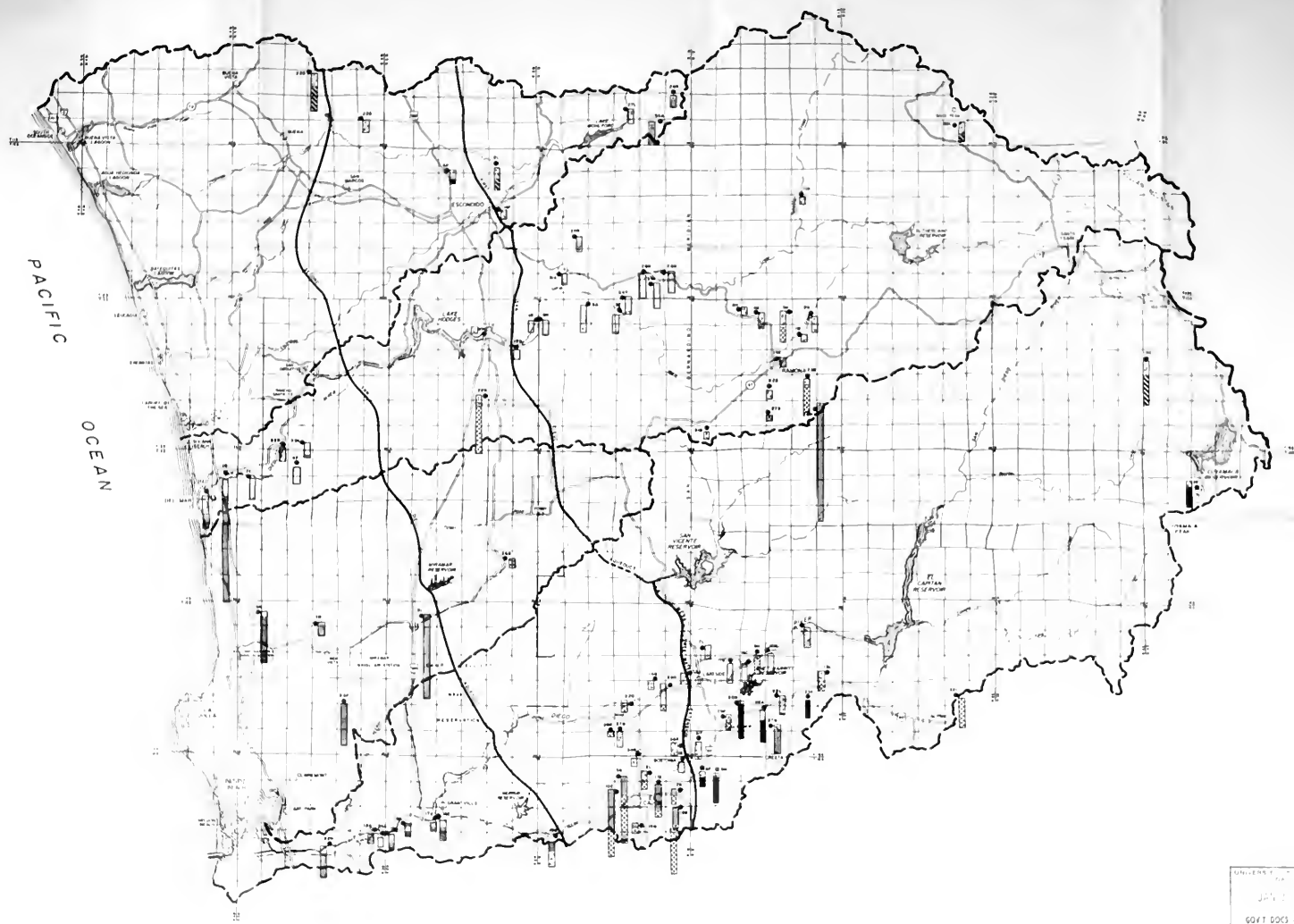


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LEGEND

	$\alpha \approx 0.1$
	$M_{\text{vir}} \approx 5 \times 10^{11} \text{ } M_{\odot}$
	$\alpha \approx 100 \text{ } M_{\odot} \text{ yr}^{-1}$
	$\text{ratio of } \alpha \text{ IFS } \approx 0.8 \text{ } M_{\odot} \text{ yr}^{-1}$

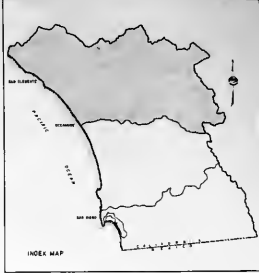
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DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
LOCATION OF SELECTED WELLS AND SPRINGS



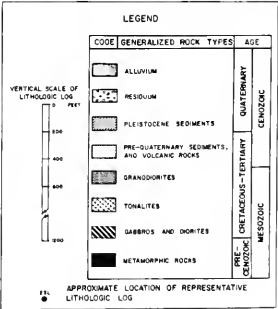
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DIVISION OF HYDROLOGY
SURFACE LITHOLOGY OF SELECTED AREAS
SAN DIEGO COUNTY





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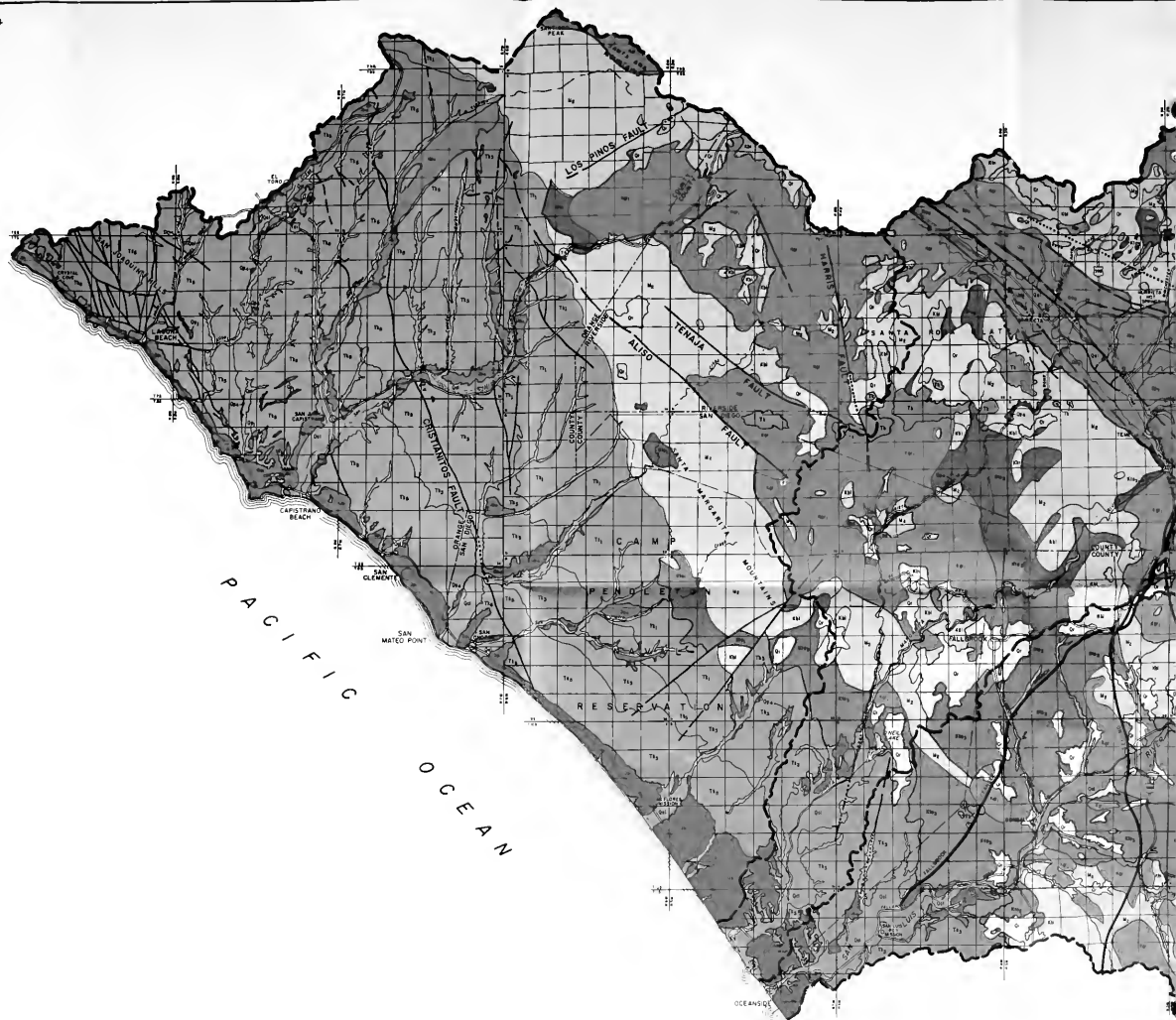
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DEPARTMENT OF WATER RESOURCES
SOUTHERN DISTRICT
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
SUBSURFACE LITHOLOGY OF SELECTED AREAS
SCALE 1:50,000

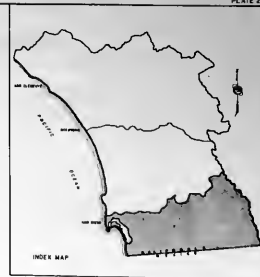
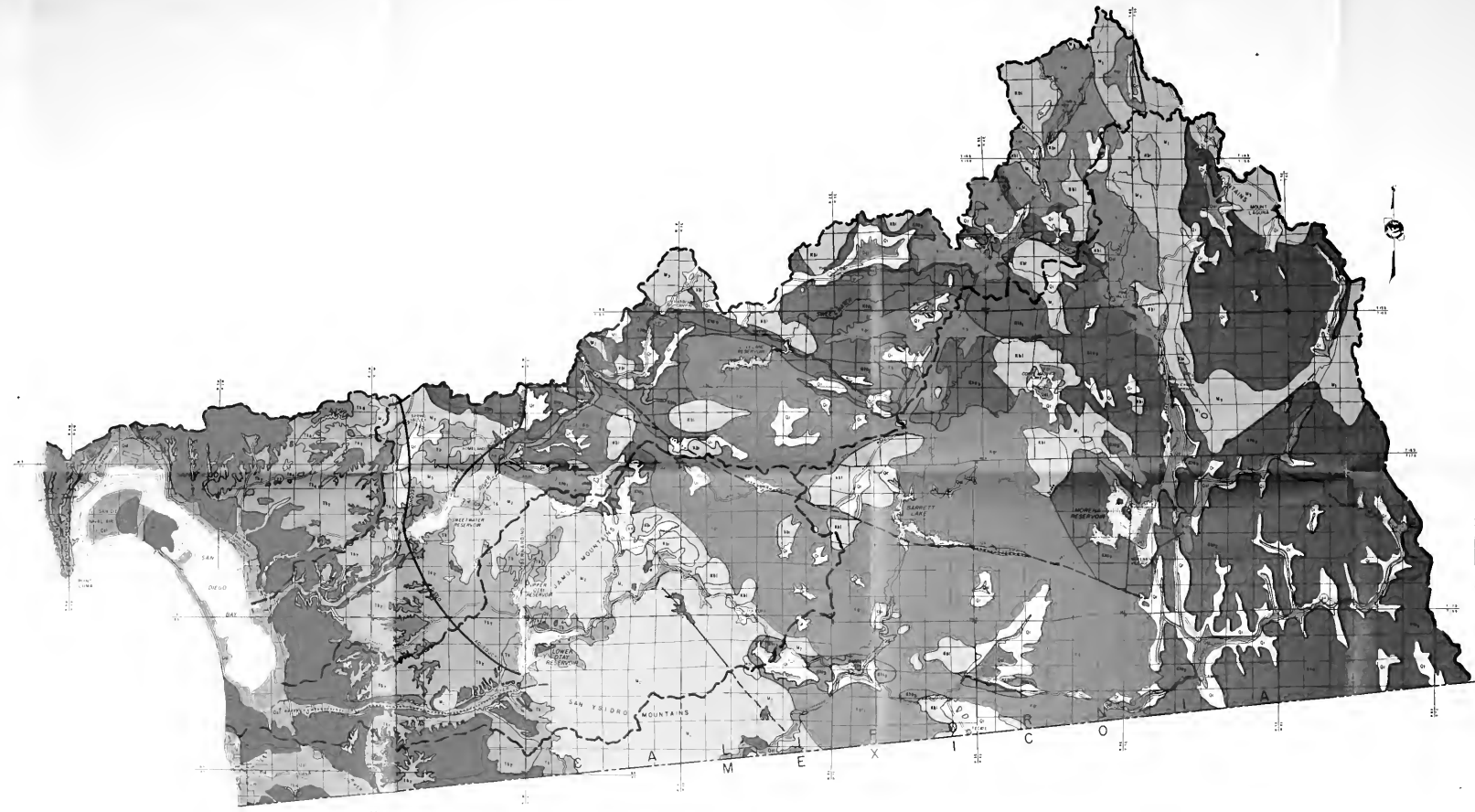


CROSS-REFERENCE		CROSS-REFERENCE		CROSS-REFERENCE	
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391	392	393	394	395	396
397	398	399	400	401	402

NOTE: THE DATA IN THIS SUMMARY ARE COMPARISONS OF THE ANALYSES PROVIDED BY AEP'S AND AEP's/STP's

OFFICE OF CALIFORNIA
THE RESOURCES AGENCY
DEPARTMENT OF WATER RESOURCES
SOUTHERN DIVISION
GROUND WATER OCCURRENCE AND QUALITY
SAN DIEGO REGION
AREAL GEOLOGY
SCALE OF 1:50,000



LEGEND

GEOLOGIC UNIT		SYMBOL		DESCRIPTION	
METAMORPHIC ROCKS	100	[Symbol]	100	100	100
	101	[Symbol]	101	101	101
	102	[Symbol]	102	102	102
	103	[Symbol]	103	103	103
SEDIMENTARY ROCKS	104	[Symbol]	104	104	104
	105	[Symbol]	105	105	105
	106	[Symbol]	106	106	106
	107	[Symbol]	107	107	107
IGNEOUS ROCKS	108	[Symbol]	108	108	108
	109	[Symbol]	109	109	109
	110	[Symbol]	110	110	110
	111	[Symbol]	111	111	111
GLACIAL DEPOSITS	112	[Symbol]	112	112	112
	113	[Symbol]	113	113	113
	114	[Symbol]	114	114	114
	115	[Symbol]	115	115	115

1. UNITS SHOWN WERE APPROPRIATELY LAYERED AND NOTED WITH CORRELATION
 2. UNITS SHOWN WERE APPROPRIATELY LAYERED AND NOTED WITH CORRELATION
 3. UNITS SHOWN WERE APPROPRIATELY LAYERED AND NOTED WITH CORRELATION

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 SAN DIEGO REGION
 AERIAL GEOLOGY
 SCALE OF 1:50,000



